

USSR

KOMAR, A. P., et al., Doklady Akademii Nauk SSSR, Vol 190, No 6, 1970, pp 1308-1311

article by the authors, as well as new data for a Pb-208 target and refined data for an Au-197 target calibrated according to Cf-252 fragments. The initial formula for the authors' calculations was the Seaborg-Viola formula for the mean kinetic energy of fragments E_k^i prior to escape of neutrons from them.

1/2 018
UNCLASSIFIED
TITLE--DOUBLE SALTS FORMED BY RUBIDIUM AND CESIUM SULFATES WITH MAGNESIUM
SULFATE -U-
AUTHOR--(02)-RASSONSKAYA, I.S., SEMENDYAYEVA, N.K.
COUNTRY OF INFO--USSR
SOURCE--ZH. NEORG. KHIM. 1970, 15(4), 1134-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--SULFATE, RUBIDIUM COMPOUND, CESIUM COMPOUND, MAGNESIUM
COMPOUND, DEHYDRATION, ACTIVATION ENERGY, PHASE DIAGRAM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/1120
STEP NO--UR/0078/70/015/004/1134/1138
CIRC ACCESSION NO--AP0123112
UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--13NOV70
 CIRC ACCESSION NO--AP0123112
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHASE TRANSITIONS IN THE RB SUB2
 SO SUB4-MGSO SUB4 AND CS SUB2 SO SUB4-MGSO SUB4 SYSTEMS WERE STUDIED BY
 DTA AND THE PHASE DIAGRAMS ARE CONSTRUCTED. THE RESP. SYSTEMS FORMED
 CONGRUENTLY MELTING RB SUB2 SO SUB4 .2MGSO SUB4 AND CS SUB2 SO SUB4
 .3MGSO SUB4 AND INCONGRUENTLY MELTING 3CS SUB2 SO SUB4 .2MGSO SUB4 AND
 3CS SUB2 SO SUB4 .MGSO SUB4. THE DOUBLE SALT M SUB2 SO SUB4 .MGSO SUB4
 .6H SUB2 O (M EQUALS RB OR CS) WAS CRYSTD. FROM AQ. SOLNS. DEHYDRATION
 OF THESE COMPOS. WAS IN 2 STEPS; THE ACTIVATION ENERGIES OF THE 1ST
 DEHYDRATION STEP WERE 27 AND 37 KCAL-MOLE, RESP. FACILITY:
 INST OBSHCH. NEORG. KHIM. IM. KURNAKOVA, MOSCOW, USSR.

UNCLASSIFIED

172 011 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--DETERMINATION OF THE QUANTIZATION OF ELECTRICAL CONDUCTIVITY CURVES
DURING TRANSESTERIFICATION -U-
AUTHOR--(04)-DENDE, G.D., KULAKOV, M.V., SEMENDUYEV, V.YE., RUZHENTSEVA,
Z.A.
CCUNTRY OF INFO--USSR
SOURCE--LAKUKRASOCH. MATER. IKH PRIMEA. 1970, (2), 67-70
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ESTERIFICATION, ALKYD RESIN, ELECTRIC CONDUCTIVITY, CHEMICAL
PRODUCTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FILCH NO----F0707695012/807 STEP NO--UR/0303/70/000/002/005 17/0070
CIRC ACCESSION NO--AP0140247
UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0140247

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. THE TERMINATION OF THE
TRANSESTERIFICATION STEP IN THE MANUF. OF ALKYD RESINS IS INDICATED BY
THE APPEARANCE OF A MIN. ON THE PLOTS OF THE REACTION MIXT. ELEC.
RESISTANCE (R) VS. TIME. R WAS EXPRESSED AS A SERIES AND THE CONDITIONS
WERE DETD. THEORETICALLY, WHICH DET. UNIQUELY AT THE END OF THE
TRANSESTERIFICATION WHEN DR/DT OVER DT EQUALS 0.

UNCLASSIFIED

Acc. Nr:

AP0034101

Abstracting Service:
CHEMICAL ABST. 4-70

Ref. Code:

WR 0078

71607a Polymorphic transformations of some rare alkali metal sulfates. Rassonskaya, I. S.; Serzendyaeva, N. K. (Inst. Obshch. Neorg. Khim. im. Kurnakova, Akad. Nauk SSSR). Zh. Neorg. Khim. 1970, 15(1), 52-6 (Russ). Rb₂SO₄, Cs₂SO₄, and Rb₂SO₄·Li₂SO₄ were studied by DTA and by high-temp. x-ray diffraction. At 700°, Rb₂SO₄ had lattice parameters $a = 6.19$ and $c = 8.39$ Å, and, at 800°, Cs₂SO₄ had $a = 6.43$ and $c = 8.86$ Å. All investigated sulfates undergo polymorphic transformations, the double salt at ~200° and Rb and Cs sulfates at 650 and 720°, resp.

HMJR

REEL/FRAME

19710744

18

di

USSR

UDC 578.087.87

SEMENENKO, A. D., Moscow State University imeni M. V. Lomonosov and Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, Moscow

"Electrophytogram of the Beat Rhythm"

Moscow, Doklady Akademii Nauk SSSR, Vol 206, No 3, 1972, pp 751-754

Abstract: The spontaneously arising beat rhythm (length of period $T = 0.2-3.5$ sec, amplitude $A_{max} = 100-250 \mu v$, $A_{min} = 2-30 \mu v$) of young *Mimosa pudica*, *Phaseolus vulgaris*, *Primula veris*, and *Begonia lucerna* plants and also of plants of other species was studied on the basis of automatically recorded electrophytograms of auto-oscillations measured by means of two Pt electrodes applied to leaf tips. An electroencephalograph with an integrator and frequency analyzer and a polyphysiograph were used in recording. To treat some time data, special equipment (a recorder and equipment for automatic printing and perforation) was used that had been developed at the Institute of General and Communal Hygiene, Academy of Medical Sciences USSR. The frequency, amplitude, and length of period varied depending on the physiological condition of the plants and the time of the day. T of the α -rhythm in the early morning hours was 0.1-1, 0.5-1.5, 3.5-4, and 3-3.5 sec for *M. pudica*, *P. veris*, *P. vulgaris*, and *B. lucerna*, respectively. T of the β rhythm for *B.*

1/2

USSR

SEMENENKO, A. D., Doklady Akademii Nauk SSSR, Vol 206, No 3, 1972, pp 751-754

lucerna was 0.8 sec. Dominant rhythm waves (e.g., α and θ for *P. vulgaris*) were accompanied by accessory waves that had approximately the same frequency, but a lower amplitude. The beat rhythms were most pronounced at the end of the day and in other transitional periods in which the response of the plants to external stimuli was greatest. Experiments in which determination of reduced ascorbic acid in the leaves by titration with 2,6-dichlorophenolindophenol was carried out parallel with the recording of beat rhythms showed that the content of ascorbic acid was at a maximum before the appearance of these rhythms and then again at the time at which they were recorded. These results agreed with those obtained in earlier work by the author (DAN SSSR, Vol 151, No 5, 1963) in which it was established by motion picture photography that the fluctuations of the ascorbic acid content in the early morning and evening were accompanied by rhythmic pulsating motions of the plants of a type similar to that of the beat rhythm. (Submitted by Academician A. A. Kursanov, 17 Jan 72)

2/2

- 54 -

USSR

UDC 612.76.001.572:613-07

SIDORENKO, G. I., Professor, and SEMENENKO, A. D., Candidate of Medical Sciences, Institute of General and Communal Hygiene imeni A. N. Sysin, Academy of Medical Sciences USSR, Moscow

"A Physiological Model of a Servo-System for Motor Coordination in Man and Its Application in Hygienic Investigations"

Moscow, Gigiyena i Sanitariya, No 9, 1971, pp 55-60

Abstract: In a continued investigation of early changes induced in man's systemic reactions to atmospheric pollutants, a system was designed which records disturbances developing in learned motor skills in the presence of minimum perceptible and subsensory amounts of toxic substances (sulfur dioxide, hydrogen sulfide, benzene, phenol, carbon disulfide, and carbon dioxide) in room air. The experimental subjects (aged 18-55) performed programmed tasks and, during the flashing of a signal light, had to depress plastic sensors with a certain force and at a certain angle. The programmed tasks were varied to present a stimulating, logical challenge, since idleness inbetween the light signals would make the subjects very tense at first and drowsy subsequently. Records of the reduced precision and speed with which the plastic sensors were depressed, changes in EEG and other measured parameters, and mistakes made in the performance of the programmed tasks in the

1/2

USSR

SIDORENKO, G. I., and SEMENENKO, A. D., Gigiyena i Sanitariya, No 9, 1971,
pp 55-60

presence of perceptible and imperceptible amounts of pollutants in the air
revealed a statistically significant deterioration in integrated control of
man's motor activities. The system is suitable for use in industrial plants.

2/2

- 49 -

USSR

UDC 535.39 : 539.238

SEMENENKO, L. V., SVITASHEV, K. K., SEMENENKO, A. I., and SOKOLOV, V. K.
"Ellipsometry of Absorbing Films"

Leningrad, Optika i Spektroskopiya, Vol 32, No 6, Jun 72, pp 1204-1210

Abstract: The article shows on the basis of reflection theory that the ellipsometry method can be used for the nondestructive measurement of the thickness (over a wide range) of light-absorbing films, particularly semiconductor films on dielectric substrates during operation in the visible or near-infrared region. As an example, results are given of a theoretical and experimental study of the use of the ellipsometric method to measure the thickness of a layer of single-crystal silicon on a silicon dioxide substrate. A diagram is given of the ellipsometer constructed by the authors for the purpose. The results obtained with the ellipsometer were compared with the thickness values obtained as a result of direct measurements with an MBI-11 microscope. It was found that the results obtained by the two methods coincide to within measurement errors.

1/1

1/2 058 UNCLASSIFIED
TITLE--SANITARY CHEMICAL AND HYGIENIC STUDIES OF GAS LIBERATION FROM
POLYMER MATERIALS USED AS INSULATION -U-
AUTHOR-(104)-GORODINSKIY, S.M., GAZIYEV, G.A., KOSTERINA, E.I., SEMENENKO,
E.I.
COUNTRY OF INFO--USSR
SOURCE--PLAST MASSY 1970, (2), 71-4
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TOXICITY, INDUSTRIAL HYGIENE, INSULATING MATERIAL,
POLYETHYLENE, POLYVINYL CHLORIDE, POLYSTYRENE CHLORIDE, RESIN,
POLYCARBONATE RESIN, CAPRONE, EPOXY RESIN, PAINT, VARNISH, METHYL
METHACRYLATE, CHEMICAL STABILIZER, REINFORCED PLASTIC, GAS STATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1997/0664 STEP NO--UR/0191/70/000/002/0071/0074
CIRC ACCESSION NO--AP0119572
UNCLASSIFIED

2/2 058

UNCLASSIFIED

PROCESSING DATE--300CT70

CIRC ACCESSION NO--AP0119572

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOXICITY AND ODOR OF SIMILAR TO 50 POLYMERS, E. G., POLYETHYLENE, POLY(VINYL CHLORIDE), POLYSTYRENE, POLYCARBONATE, KAPRON, EPOXY RESINS, PAINT AND VARNISH MATERIALS (I) (PREP. FROM STYRENE-ME AND METHACRYLATE COPOLYMERS) AND GLASS FIBER REINFORCED PLASTICS (II) WERE STUDIED AT MINUS 55 PLUS OR MINUS 5 DEGREES AND NORMAL PRESSURE. I AND II LIBERATED TOXIC SUBSTANCES AND HAD A PUNGENT ODOR. THE KINETICS OF GLASS EVOLUTION FROM POLYMERS INDICATED THAT PRELIMINARY HEAT TREATMENT AND VACUUM TREATMENT OF RAW MATERIALS OR FINISHED PRODUCTS REDUCED THE CONTENT OF TOXIC SUBSTANCES IN THE EVOLVED GASES. CHEM. MODIFICATION WITH STABILIZERS, HARDENERS, AND ANTIAGING AGENTS WAS MORE EFFECTIVE. MODIFICATION OF I WITH POLYETHYLENE POLYAMINE REDUCED THE CONC. OF THE EVOLVED EPICHLOROHYDRIN, WHEREAS PRELIMINARY HEAT TREATMENT LOWERED THE CONC. OF PHME IN THE GAS PHASE.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

1/2 021
TITLE--EFFECT OF SODIUM CHLORIDE IN THE INTENSITY OF THE SPECTROGRAPHIC
LINES OF NIOBIUM AND TANTALUM -U-
AUTHOR-(03)-TARASEVICH, N.I., SEMENENKO, K.A., BAIER, G.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 281-4

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SODIUM CHLORIDE, SPECTROGRAPHIC ANALYSIS, NIOBIUM, TANTALUM,
CARBON ELECTRODE, ROCK, CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/1893

STEP NO--UR/0075/70/025/002/0281/0284

CIRC ACCESSION NO--AP0115712

UNCLASSIFIED

2/2 021

CIRC ACCESSION NO--AP0115712
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--30OCT70

ABSTRACT. THE EFFECT OF NACL ON THE INTENSITY OF NB AND TA SPECTRAL LINES WAS STUDIED TO INCREASES INTENSITY OF THEIR DETN. A NEW METHOD OF INTRODUCING NACL INTO THE LIGHT SOURCE BY SATN. OF THE C ELECTRODE WITH THE NACL SOLN. IS PROPOSED. C ELECTRODES (LOWER) ARE FIRED PREVIOUSLY IN A 6-A ARC FOR 30 SEC AND WHILE HOT ARE IMMersed IN 10PERCENT NACL FOR 5 MIN. THE UPPER ELECTRODE IS NOT SATD. WITH NACL. THERE IS A LINEAR DEPENDENCE BETWEEN THE INTENSITY OF SPECTRAL LINES OF THSES ELEMENTS AND THEIR CONC. IN THE RANGE OF 1 TIMES 10 PRIME NEGATIVE3 MINUS 3.6 TIMES 10 PRIME NEGATIVE2PERCENT TA AND 2 TIMES 10 PRIME NEGATIVE3 MINUS 1 TIMES 10 PRIME NEGATIVE2PERCENT NB. NB DOES NOT AFFECT TA DETN. IN THE NB-TA RATIOS OF 10:1 AND 1:1. THE SENSITIVITY LIMIT OF THE DIRECT TA DETN. IS INCREASED BY ONE ORDER TO 2 TIMES 10 PRIME NEGATIVE 7 G (2 TIMES NEGATIVE3PERCENT). THE VARIATION COEFF. IS 6PERCENT. THIS METHOD CAN BE USED FOR THE DETN. OF NB AND TA IN GRANITES. FACILITY:
MOSCOW STATE UNIV., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 535.39 : 539.238

SEMENENKO, I. V., SVITASHEV, K. K., SEMENENKO, A. I., and SOKOLOV, V. K.

"Ellipsometry of Absorbing Films"

Leningrad, Optika i Spektroskopiya, Vol 32, No 6, Jun 72, pp 1204-1210

Abstract: The article shows on the basis of reflection theory that the ellipsometry method can be used for the nondestructive measurement of the thickness (over a wide range) of light-absorbing films, particularly semiconductor films on dielectric substrates during operation in the visible or near-infrared region. As an example, results are given of a theoretical and experimental study of the use of the ellipsometric method to measure the thickness of a layer of single-crystal silicon on a silicon dioxide substrate. A diagram is given of the ellipsometer constructed by the authors for the purpose. The results obtained with the ellipsometer were compared with the thickness values obtained as a result of direct measurements with an MBI-11 microscope. It was found that the results obtained by the two methods coincide to within measurement errors.

1/1

USSR

UDC: 662.6.004.14

SEMENENKO, N. A., SIDEL'KOVSKIY, L. N. (editors), Moscow Power Engineering Institute

"Reports of the Scientific and Technical Conference on the Results of Scientific Research Work for 1968-1969, April 1970. Industrial Thermal Engineering Section. Subsection on Industrial Flame Technology and Heat Utilization in Power Engineering Technology"

Doklady Nauchno-tehnicheskoy konferentsii po itogam nauchno-issledovatel'skikh rabot za 1968-1969 gg., apr. 1970 g. Sekts. prom. teploenerg. Podseks. prom. ognetekhn. i energotekhnol. teploispol'z. (cf. English above), Moscow, 1969, 120 pp., ill. 54 k. (from RZh-Teploenergetika, No 3, Mar 70, Abstract No 3G13 K)

[No abstract]

- END -

5915

CSO: 1860-D

1/1

1/2 020 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--THE MYSTERIES OF THE CRYSTALLINE SHIELD ARE BEING SOLVED -U-

AUTHOR--SEMENENKO, N.P.

COUNTRY OF INFO--USSR

SOURCE--RABOCHAYA GAZETA, MAY 13, 1970, P 2, COLS 3-6

DATE PUBLISHED--13MAY70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOLOGIC MAPPING, PHYSICAL GEOGRAPHY, PROSPECTING, IRON ORE,
COPPER ORE, NICKEL ORE, GOLD, SILVER, MOLYBDENUM, TUNGSTEN, COBALT,
ANTIMONY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/0603

STEP NO--UR/9015/70/000/000/0002/0002

CIRC ACCESSION NO--AN0104153

UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AN0104153

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE AUTHOR DISCUSSES THE MINERAL POTENTIAL OF THE UKRAINE. HE REVEALS THAT DRES WITH 0.2-10 GRAMS OF GOLD PER TON HAVE BEEN DISCOVERED IN THE PRONEPROV, YE REGION OF THE UKRAINE. GOLD AND SILVER HAVE ALSO BEEN DISCOVERED IN THE IRON DRES OF THE KRIVY ROG REGION. MOLYBDENUM AND TUNGSTEN HAVE BEEN FOUND NEAR KREMENCHUK IN THE POLTAVA PROVINCE. DEPOSITS OF COPPER NICKEL SULFIDES, COBALT, AND ANTIMONY HAVE BEEN DISCOVERED IN OTHER PARTS OF THYUKRAINE.

UNCLASSIFIED

Ref. Code:
ULK 0000

Acc. Nr: **AA0037185** Abstracting Service:
CHEMICAL ABST. **3-7d**

57299v Alumina from nephelite rock and kaolin. ~~Semenov, N. P.~~
~~Sazhin, V. S.~~; ~~Shor, O. I.~~; ~~Moshkina, M. K.~~
~~Chumachenko, V. S.~~; ~~Smirnov, M. N.~~; ~~Zorkov, M. M.~~ (In-
stitute of General and Inorganic Chemistry, Academy of Sciences,
Ukrainian S.S.R.) Brit. 1,177,133 (Cl. C 01f), 01 Jan 1970,
Appl. 10 Feb 1967; 3 pp. A process for prepg. Al_2O_3 is described
in which nephelite rock is leached in an autoclave with an aq.
NaOH soln. (500 g $Na_2O/l.$) in the presence of CaO . The temp.
is 280-300°, the time is 10 min, and the $CaO:SiO_2$ mole ratio is
1.05:1. The mixt. is filtered, the solids are washed, and the
filtrate and washings are evapd. yielding an aluminate soln.
contg. 500-20 g $Na_2O/l.$ The soln. is cooled to 40-5° to crystal-
lize aluminates which are then sepd. from the mother liquor. A
portion of the mother liquor (contg. 120-30 g $Na_2O/l.$) is recycled
to the autoclave; the remainder is fortified with NaOH and used

REEL/FRA
19730105

AA0037185

to leach calcined (1050-150°) kaolin. The NaOH is added in an amt. calcd. to react only with the sol. part (~60%) of the SiO_2 in the kaolin. The leach liquor, comprised of a silicate soln. (contg. Na_2O 130-50, SiO_2 100-20, and Al_2O_3 2-5 g/l.), it is cooled to 20° to crystallize com. Na silicate. The leach solids, comprised of an Al_2O_3 conc. (contg. Al_2O_3 55-65, SiO_2 32-8, and impurities 2-3%) are sintered (1100-200°) with limestone and Na_2CO_3 . The sinter is cooled and leached with wash H_2O to prep. an aluminate soln. contg. 65-75 g Al_2O_3 /l. The insol. material is sepd. from the leach liquor and can be used as raw material for the manuf. of portland cement. The crst. aluminates from the nephelite treatment are dissolved in the aluminate soln. from the kaolin treatment to prep. a soln. contg. 130 g Al_2O_3 /l. and 130 g Na_2O /l. which corresponds to the concns. in Bayer process solns. Silicates are removed from the soln. by treatment at 105° for 6 hr with $3\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{H}_2\text{O}$. The solids are sepd. and the soln. is treated with $\text{Al}(\text{OH})_3$ to ppt. Al oxide hydrate which is sepd. and calcined to prep. Al_2O_3 . Compared with other processes for prepg. Al_2O_3 from nephelite or kaolin this process requires less evapn. of leach solns. and less NaOH.

E. C. Houston

dy

19730106

1/2 014 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--VIBRATIONS OF THE NITRO GROUP IN NITROPHENOLS WITH INTRAMOLECULAR
HYDROGEN BONDING IN PROTON ACCEPTOR SOLVENTS --U--
AUTHOR--(03)-GRANZHAN, V.A., SEMENENKO, S.V., ZAITSEV, P.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(5), 922-5

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AROMATIC NITRO COMPOUND, PHENOL, HYDROGEN BONDING,
INTRAMOLECULAR MECHANICS, SOLVENT ACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605018/B11 STEP NO--UR/0368/70/012/005/0922/0925

CIRC ACCESSION NO--AP0140800

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140800

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE EFFECT OF INTRAMOL. H BONDING ON FREQUENCIES (NU) OF SYM. AND ASYM. VALENCE VIBRATIONS OF NO SUB2 GROUPS OF SUBSTITUTED NITROPHENOLS, IN DIFFERENT SOLVENTS, AND THEIR MIXTS. WAS STUDIED. IN BASIC SOLVENTS, NU SUBSYM INCREASED DUE TO DISRUPTION OF THE INTRAMOL. H BOND (NO SUB2-OH) AND FORMATION OF INTERMOL. H BOND BETWEEN OH GROUP OF THE PHENOLS AND MOLLS. OF THE SOLVENT. IN MIXED SOLVENTS, THE INTENSITY OF NU SUBSYM OF THE FREE AND BONDED NO SUB2 GROUPS DEPENDED ON THE CONC. OF NONPOLAR AND PROTON ACCEPTOR SOLVENTS.

UNCLASSIFIED

USSR

UDC 681.325.65

ROZENBLAT, M. A., SEMENENKO, V. A., and FEDIN, G. V.

"Magnetic Element With Adaptable Transmission Factor"

USSR Author's Certificate No 276158, Filed 14/05/69, Published 8/10/70
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B187P)

Translation: The element with adaptable transmission factor suggested relates to the area of automation and computer technology and can be used in those cases in which a binary variable X must be multiplied by the value of a coefficient K , which in the process of adaptation may take on any required value within the limits $-1 < K < +1$, after which it remains unchanged. There are well-known elements (E) with adaptable transfer coefficients which are based on 2 3-hole transfluxors (T), performing the function of recording transfer factor K , and 2 toroidal magnetic cores, forming control voltage pulses with fixed volt-second area in order to provide the required change in residual magnetic flux in the T and, consequently, the value of the transmission factor of the E . The purpose of this invention is to simplify the E and increase its reliability.

1/2

USSR

ROZENBLAT, M. A., et al., USSR Author's Certificate No 276158, Filed 14/05/69, Published 8/10/70 (Translated from Referativnyy Zhurnal Avtomatika, Tele-mekhanika i Vychislitel'naya Tekhnika, No 5, 1971, Abstract No 5B187P)

In the E suggested, this is achieved by series connection of the windings for preparation of the toroidal cores and the read windings of the T. When the input binary variable reaches the E, this makes it possible to commutate only one circuit consisting of the series-connected windings mentioned above, by feeding or blocking monopolar pulses of input variable X. Furthermore, it is convenient using this element to perform reading with asymmetrical current pulses, allowing simpler 2-hole T to be used in the E. 1 fig.

2/2

- 18 -

USSR

UDC: 621.375:621.3.064(088.8)

POGOREL'SKIY, A. Ye., ROL'NIK, M. A., SEMENENKO, V. A.

"A Device for Making Inductively Coupled Circuits Spark-Safe"

USSR Author's Certificate No 259981, filed 26 Sep 65, published 4 May 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D123.P)

Translation: This Author's Certificate introduces a device for making inductively coupled circuits such as the output transformers of amplifiers spark-safe when there is intermittent interruption of the DC circuit in the primary winding. To increase the maximum spark-safe power, a choke in series with a DC source is connected in the primary circuit of the transformer with a capacitor which shunts the DC source and the choke. Resumé.

1/1

Waveguides

USSR

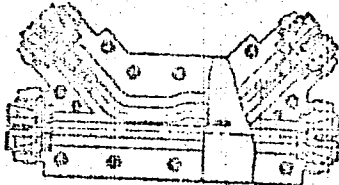
UDC: 621.372.832.6

SEMENCHENKO, V. I.

"A Coaxial Directional Coupler"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 18, Jun 71, Author's Certificate No 305529, Division H, filed 26 Nov 69, published 4 Jun 71, p 179

Translation: This Author's Certificate introduces a coaxial directional coupler which contains series-connected sections of coaxial lines coupled together by means of a smooth bend in the axis of an auxiliary channel, and electrically connected to the main channel by quarter-wave slot sections. As a distinguishing feature of the patent, in order to change the working frequency band, the width of each of the above-mentioned coupling slot sections is made independently variable.



1/1

1/2 030 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--STATISTICAL THERMODYNAMICS OF AN IDEAL GAS WITH ELECTRIC AND
MAGNETIC DIPOLES -U-
AUTHOR--(02)--SEMENCHENKO, V.K., GALTSEV, V.V.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. (USSR), NO. 2, P. 232-5
(1970)
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MODEL, IDEAL GAS, THERMODYNAMICS, ELECTRIC DIPOLE MOMENT,
MAGNETIC MOMENT, ELECTRIC FIELD, MAGNETIC FIELD, VECTOR ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605029/012 STEP NO---UR/0158/70/000/002/0232/0235

CIRC ACCESSION NO--AP0141712

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0141712

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING MODEL IS CONSIDERED:

TWO ATOMIC MOLECULES OF AN IDEAL GAS HAVE DIPOLES WITH CONSTANT ELECTRIC AND MAGNETIC MOMENTS AND ARE SUBJECTED TO STATIC ELECTRIC AND MAGNETIC FIELDS WHOSE VECTORS ARE PARALLEL. THE ELECTRIC AND MAGNETIC PERMITTIVITIES OF THE GAS ARE OBTAINED AS FUNCTIONS OF THE EXTERNAL FIELDS.

UNCLASSIFIED

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--STATISTICAL BASES OF STABILITY THEORY -U-
AUTHOR--SEMENCHENKO, V.K. S
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 1109-11
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMODYNAMICS, STABILITY CONSTANT, STATISTICS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/1216 STEP NO--UR/0076/70/044/004/1109/1111
CIRC ACCESSION NO--AP0124634
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128634

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMODYNAMIC THEORY OF STABILITY AND THE THEORY OF PHASE TRANSITIONS BASED ON IT WERE EXAMD. STATISTICAL EXPRESSIONS FOR THE BASIC CHARACTERISTICS OF STABILITY (STABILITY COEFFS. AND DETERMINANTS AS WELL AS OTHER COMPONENTS OF THESE, MIXED 2ND DERIVS.) WERE ANALYZED. EXPRESSIONS FOR THE STABILITY COEFFS. AND DETERMINANTS WERE DERIVED BY USING THE FLUCTUATIONS AND OTHER PHYS. VALUES FOR SYSTEMS SUBJECTED TO EXTERNAL FIELDS.
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 532.57+532.137+536.51+532.14.08+531.787

ALEKSEYEV, V. N., SEMCHENKO, V. V.,

"Investigation of Conical Flows by a New Optical Method"

V sb. Nauch. konf. In-t mekh. Mosk. un-ta, Moskva, 22-24 maya 1972 g. Tezi-
sy dokl. (Scientific Conference. Institute of Mechanics, Moscow University,
Moscow, 22-24 May 1972. Abstracts of Papers), Moscow, 1972, pp 4-5 (from
RZh-Mekhanika, No 9, Sep 72, Abstract No 9B1389)

Translation: A new method is proposed for optical investigation of three-
dimensional flows. The essence of this method consists in the fact that
the emission of a pulse laser is injected into the working section of a
wind tunnel, and focused on the surface of the model to produce an explosion
jet there. The flow region is illuminated both by the emission from the jet
and by diffusely reflected laser emission. The authors analyze the main
principles governing formation of the shadow pattern on the basis of re-
lations of geometric optics for a model in the form of a flat delta wing.
It is shown that in regions close to the plane of symmetry, the shadow
pattern is registered with small distortions. Far from the plane of sym-
metry, the distortions are considerable, but the shadow pattern can be re-

1/2

USSR

ALEKSEYEV, V. N., SEMCHENKO, V. V., Nauch. konf. In-t mekh. Mosk. un-ta, Moskva, 22-24 maya, 1972 g. Teziy dokl., Moscow, 1972, pp 4-5

covered when the photographs are analyzed. Procedural experiments with flat delta wings at a Mach number $M=3$ and Reynolds number $R=7.7 \cdot 10^6$ and comparison with theory showed satisfactory (within 3%) coincidence of geometric flow components. In connection with particulars of the mechanism of formation of the shadow pattern, gas densities are determined with low precision.

The paper gives the results of systematic studies of internal regions of V-wing models at various attack, pointing and vertex angles. As shock waves interact, Mach configurations with lines of contact discontinuity are observed. Three stages of interaction between an incident shock and a turbulent boundary layer are traced: nondetached flow, nucleation of detached flow and branching of the shock, detachment of the boundary layer and bending of stream lines in the inner region. To check the applicability of the procedure to three-dimensional nonconical flows, an investigation is made of flow around a cylindrical projection, and around a control element projecting out of the plane.

2/2

- 151 -

SEMENENKO, V. Ye.

ON THE ELECTRICAL CONDUCTIVITY OF DIRECTIONALLY
CRYSTALLIZED COMPOSITION Al--Al₃NI

UDC 669.018.5 + 519.21

V. Ye. Semenenko, A. I. Somov, and V. I. Tulov, Kharkov State University
Institute of Physics, Physics Engineering Institute of the Ukrainian SSR
Academy of Sciences, submitted to press 19 May 1972 papers 1317-1319

At the present time considerable attention is being devoted to the study of composition materials, among which materials which have obtained directional crystallization of alloys of a eutectic composition [1-6] occupy a notable place. Quite a large number of works are known devoted to the development of various methods of obtaining and investigating the effect of the parameters of growth on the microstructure and mechanical properties of the composition [7-11]. However, the physical properties of such systems have been inadequately studied. Compositions based on aluminum alloys [3, 12, 13], having high values of specific strength and specific modulus of elasticity, are of special interest.

In this work the results of an investigation of the electrical conductivity of an Al--Al₃NI alloy of eutectic composition are given, obtained by the method of directional crystallization.

As the initial material, zone-purified aluminum was used, with a purity of 99.9995%, with a residual resistance R_{1000K}/R_4 , 20g-50 and nickel of 99.995% purity with a residual resistance R_{1000K}/R_4 , 20g-50. The eutectic system was unidirectionally crystallized according to the Chokhralskiy method with the following rates of withdrawal of the ingot from the melt: 14; 24; 90; 180; 360; 720; and 1440 millimeters per hour.

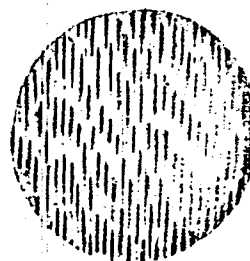
At all rates of growth a primary mutual connection of the interphase between the phases of Al and Al₃NI was observed, with a direction of growth, which may be described in the following manner:

interface $\{100\}_{Al}$; $\{111\}_{Al_3Ni}$
direction of growth $1 < 010 >_{Al}$; $1 < 10 >_{Al}$

- III -

*Added Annotation
The existing 5125 5811
30 March 1975 (from
English translation
of the original)
6, 1972*

Figure 1. Microslide of a specimen of Al-Al₃Ni grown at a rate of growth
v990 millimeters per hour (longitudinal section); x 1250.



- 112 -

Microbiology

USSR

UDC 582.251.001.57

TSOGLIN, L. N., VLADIMIROVA, M. G., and SEMENENKO, V. Ye., Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, Moscow

"Mathematical and Experimental Modeling of the Process of Autoselection of Microalgae in Continuous Culture"

Moscow, Fiziologiya Rasteniy, Vol 17, No 6, Nov/Dec 70, pp 1129-1139

Abstract: A mathematical analysis was made of the dynamics of growth of a multicomponent population of microalgae. A theoretical basis was developed for automatic competitive selection, and it was demonstrated that productive strains to suit predetermined conditions can be obtained in continuous culture. The theory was tested in a study of the dynamics of growth and change in correlation of forms in a multicomponent population consisting of *Chlorella* sp. K, *Chlorella* CO-10, *Scenedesmus obliquus* 125, and *Chlorella vulgaris* 7-23-1. Continuous cultivation was carried out at densities corresponding to the different growth stages (exponential and linear) and at various original concentrations of the strains. When the cultures were transferred from less active conditions to a reactor with a high intensity of external parameters, the change in the specific rate of multiplication

1/2

USSR

TSOGLIN, L. N., et al, Fiziologiya Rasteniy, Vol 17, No 6, Nov/Dec 70, pp 1129-1139

was found to lag behind the change in photosynthetic activity by a time interval equal to the period of generation of a given strain. Differences in the average size of cells of strains forming part of the population had no effect on the kinetics of selection. Study of CO_2 exchange in the process of autoselection revealed increased photosynthesis by the multicomponent population due to a change in its qualitative composition. The experimental findings were consistent with the theoretical calculations in both the exponential and linear stages of growth.

2/2

USSR

TAUTS, M. I., SELIVANOVA, T. M., and SEMENENKO, V. Ye., Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, Moscow

"Interpretation of the Self-Stimulating Effect of Chlorella Growth"

Moscow, Fiziologiya Rasteniy, Vol 18, No 1, Jan/Feb 71, pp 69-77

Abstract: The presence of indolyl-3-acetic acid in the extracellular metabolites of a bacteria-free culture of the thermophilic Chlorella sp. K strain was demonstrated on the basis of chromatographic analysis, determination of R_f of the spots in various solvent systems, fluorescence of the spots in ultraviolet light, color tests, UV spectra, and the effect of the growth regulator on wheat coleoptiles and algae. An unknown biologically active substance (or substances), probably of an indole nature, was also found. It was invariably present on the chromatograms, where it produced a wide range of color reactions. The indole compounds stimulated the growth of both algae and wheat coleoptiles, suggesting that hormones are involved in the processes of intracellular regulation. The physiological significance of the compounds in the activity of unicellular algae was confirmed by their positive response to exogenous indolyl-3-acetic acid.

1/2

- 17 -

USSR

TAUTS, M. I., et al., Fiziologiya Rasteniy, Vol 18, No 1, Jan/Feb 71, pp 69-77

The optimum concentration to stimulate cell division in the culture and to increase the culture's productivity varies with the physiological condition of the culture.

2/2

USSR

UDC 581.1.036+581.13

SEMENENKO, V. YE., and ZVEREVA, M. G., Institute of Plant Physiology imeni K. A. Timiryazev, Academy of Sciences USSR, Moscow, Institute of Photosynthesis, Academy of Sciences USSR, Pushchino

"Comparative Study of Photobiosynthesis Modification in Two Chlorella Strains in Which the Cellular Functions Were Disturbed by High Temperature"

Moscow, Fiziologiya Rasteniy, Vol 19, No 2, Mar/Apr 72, pp 229-238

Abstract: Chlorella pyrenoidosa accumulated more substances of a noncarbon and nonprotein nature with lipids predominating, when subjected to 36°C (control 26°C) for 30 hr. The lipid fraction constituted 60% of the total biomass, and its amount in a single cell increased 13-fold in comparison with controls. The lipid fraction in Chlorella sp. subjected to 43°C (control 36°C) was 40% and in a single cell it increase 7-fold during identical time interval. The accumulation of biomass in both strains was identical. The concentration of polysaccharides and sucrose in Chlorella pyrenoidosa during the same period was 18.0 and 82.0% (control 67.6, 32.4%), respectively. The same fractions for Chlorellar sp. amounted to 72.3 and 27.7 (control 96.0, 4.0%), respectively. In both strains cell division was blocked to some extent by high temperature. On the other hand, gigantic cells appeared in Chlorella sp. These results showed that the potential ability of cells of different Chlorella strains to carry on photosynthesis and to accumulate

1/2

USSR

SEMENKO, V. YE., and ZVEREVA, M.G., Fiziologiya Rasteniy, Vol 19, No 2, Mar/
Apr 72, pp 229-238

polysaccharides or lipids under extreme conditions is determined by the strain genotype and not by the specificity of environmental factors. The signal which induces the synthesis of substances is of intracellular origin and it comes at a time when the rates of photosynthesis and metabolism differ because of the environment.

2/2

SEMENETS, P. M.

Medical
Data

SOME PROBLEMS PERTAINING TO CURRENT INFORMATION

(Article by P. M. Semnets, All-Union Scientific Research Institute of Medical and Medico-technical Information, USSR Ministry of Health, Moscow, Sovetskoye Zvezdokhraneniye, Russian, No 10, 1971, submitted 24 May 1971, pp 38-40)

UDC: 602

SO: JPRS 54514
19 NOV 1971

Information as a branch of science was conceived in libraries, and originally it was based on the traditional forms of library work. Thereafter, with development of the science, information became specialized. Investigation began to work on it more and more. At the start of our century, in view of the increase in volume of scientific literature, it became necessary to find new means of supplying scientists with comprehensive special information. Specialized information agencies appeared which, in collaboration with scientific libraries, are perfecting the methods for selecting, analyzing, processing, and furnishing information.

One of the rational methods of preparing information which are used widely in scientific research institutes of information, is the analytical method which pursues the goal of summarizing numerous sources containing all the data needed by specialist-scientists and practitioners. This method became particularly opportune during the period of differentiation and integration of science. At present, it is impossible to pursue scientific research successfully if one is confined solely to one's own scientific discipline. At this time of scientific-technological revolution, it is obvious that quite often, in theoretical or clinical medicine, a scientist cannot satisfactorily resolve the problems before him without the availability of biological, chemical, physics, electrical, engineering, etc. data. Consequently, in order to have comprehensive current information we need an analytical approach which only scientific specialists can handle. Otherwise the value of the information is diminished, as are its fullness and scope. The ever increasing volume of information; the appearance of numerous primary sources in the form of scientific journals, monographs, collected works, scientific notes and, accordingly, of secondary sources, raises the acute question of increasing the number of investigations dealing with surveys, the brief results of which would give a complete picture about the status of some problems or other. This is why the analytical-synthetic approach is being used more and more in information work.

1/2 020 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--WHO CONTROLS ELECTRONIC COMPUTERS-QUES -U-

AUTHOR--SEMENEV, N. S

COUNTRY OF INFO--USSR

SOURCE--SOVETSKAYA ROSSIYA, JUNE 12, 1970, P 2, COLS 3-8 AND P 3, COLS 1-6

DATE PUBLISHED--12JUN70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., BEHAVIORAL AND SOCIAL
- SCIENCES

TOPIC TAGS--COMPUTER TECHNOLOGY, INDUSTRIAL MANAGEMENT, RESEARCH FACILITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0185

STEP NO--UR/9022/70/000/000/0002/0002

CIRC ACCESSION NO--AN0102255

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 020

CIRC ACCESSION NO--AN0102255

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE DEALS WITH INDUSTRIAL MANAGEMENT PROBLEMS IN LENINGRAD AND LENINGRAD OBLAST. AN ENGINEERING RESEARCH AND DESIGN PLANNING CORPORATION, NAUCHNO TEKHNICHESKOYE I PROYEKTOVOYE OB, YEDINENIYE, "LENSISTEMO TEKHNIKA", HAS BEEN ESTABLISHED IN LENINGRAD. ITS MISSION IS LONG RANGE PLANNING AND FORECASTING FOR VARIOUS INDUSTRIES OF THE CITY, AND SOLUTION OF STATISTICAL, TRANSPORTATION, AND DISTRIBUTION PROBLEMS. TODAY LENINGRAD HAS 150 COMPUTATION CENTERS AND 260 MACHINE CALCULATING STATIONS AND BUREAUS. A SPECIAL ENGINEERING RESEARCH AND INDUSTRIAL CORPORATION, "LENELEK TRONMASH", HAS BEEN ESTABLISHED IN LENINGRAD IN ORDER TO PROMOTE THE USE OF ELECTRONIC COMPUTERS. IT DEVELOPS TYPICAL AUTOMATED MANAGEMENT SYSTEMS, COORDINATING ITS WORK WITH INDUSTRIAL PLANTS AND GIVING THEM THE KNOW HOW ASSISTANCE. IT HAS A SHARED TIME COMPUTATION CENTER AND AN INSTITUTE FOR ADVANCED TRAINING OF SPECIALISTS. THE INDUSTRIAL PROMOTION OF ELECTRONIC COMPUTERS IS THE OBJECT OF CONSTANT ATTENTION OF THE OBLAST AND CITY PARTY ORGANIZATIONS.

UNCLASSIFIED

USSR

UDC 539.67

SEMENIKHIN, A. N., and PYZHOVA, T. A., Moscow Engineering Physics Institute

"Recovery of Internal Friction in Titanium"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1113-1114

Abstract: A study was made of the recovery of internal friction in polycrystalline titanium by the method of attenuating oscillations at about 1 KHz in the amplitude-independent area. The activation energies determined were 0.42 ± 0.05 eV for the first stage and 0.75 ± 0.05 eV for the second stage. Difficulties were encountered in interpreting the results. However, it is concluded that the first stage of recovery at $40-70^\circ$ with an activation energy of 0.42 eV results from fixation of free dislocations by point defects formed during plastic deformation. The second stage in the $120-220^\circ$ temperature interval with an activation energy of 0.75 eV probably results from fixation of free dislocations by impurity interstitial atoms.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THEORY OF THE DOUBLE LAYER POLARIZATION AND ITS EFFECT ON THE
ELECTROKINETIC AND ELECTROOPTICAL PHENOMENA AS WELL AS ON THE DIELECTRIC
AUTHOR--(02)-DUKHIN, S.S., SEMENIKHIN, N.M. S
COUNTRY OF INFO--USSR
SOURCE--KOLLOIDNYY ZHURNAL, 1970, VOL 32, NR 3, PP 360-368
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PARTICLE MOTION, ELECTRIC POLARIZATION, ION EXCHANGE,
ELECTROPHORESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/1696 STEP NO--UR/0069/70/032/003/0360/0368
CIRC ACCESSION NO--AP0118674
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TANGENTIAL ION TRANSFER IN THE LAYER BETWEEN THE SLIP PLANE AND THE PARTICLE SURFACE AFFECTS THE DOUBLE LAYER POLARIZATION AND HENCE THE ELECTROPHORETIC MOBILITY. TAKING ACCOUNTS OF THIS EFFECT IN TERMS OF THE POLARIZATION THEORY OF A THIN DOUBLE LAYER LEADS TO ELECTROPHORESIS AND DIFFUSIOPHORESIS FORMULAR DEPENDING NOT ONLY ON THE ELECTROKINETIC, BUT ALSO ON THE STERN POTENTIAL. MEASUREMENTS OF THE ELECTROPHORETIC AND DIFFUSIOPHORETIC MOBILITIES ON THE SAME SYSTEM, OR OF ELECTROPHORETIC MOBILITY ON THREE FRACTIONS OF SPHERICAL PARTICLES WITH ELECTRICALLY IDENTICAL SURFACES, GIVEN INFORMATION ON BOTH ELECTROKINETIC AND STERN POTENTIALS. FACILITY: INST. KOLLOIDNOY KHMII I KHMII VOY AN USSR, KIEV.

UNCLASSIFIED

USSR

UDC 629.7.036.3.533

SEMENIKHIN, P. V.

"Specific Impulse of Cryogenic Microengines"

Kazan', Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, No 3, 1971, pp 50-53

Abstract: After a brief critical analysis of the available expression for determining specific impulse, the author outlines a method which takes into account a series of additional parameters determining the mass of a system, such as the masses of container insulation, heat exchanger, power source and fuel loss. Thus the effective specific impulse is given as a function of relative masses. This expression permits a rapid evaluation of the efficiency of one or other fuel and system mass in relation to a known total impulse. Calculations carried out in accordance with this method for a system using solar energy showed, that in the range of moderate values of total impulses between 40,000-70,000 newton/sec and 3.0 and 5.0 newton thrust level, it is possible to obtain approximately, with liquid nitrogen, a specific effective impulse four times that of a system with gaseous fuel. The specific impulse depends significantly on operating time, engine thrust level and duty factor.

1/1

Acc. Nr:

AP0047314

Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimičnyi Zhurnal, 1970,
Vol 42, Nr 1, pp 24-27

ON POSSIBILITY OF EXISTENCE IN ANIMAL TISSUES
OF DIFFERENT CONFORMATION FORMS OF t-RNA
DIFFERING BY ABILITY TO ACCEPT AMINO ACIDS

G. Kh. Matsuka, T. P. Baby, E. B. Skvirskaya, M. I. Kovalenko, V. I. Semenikhin.
Institute of Biochemistry, Academy of Sciences, Ukrainian SSR, Kiev

Summary

The transfer RNA of the liver of fastened rabbits loose partially the ability to accept such amino acids as tyrosine, leucine, methionine and glycine. A momentary heating of t-RNA in the presence of magnesium ions favours to a considerable extent the reduction of the lost ability of t-RNA to accept the mentioned amino acids. The analogous results are obtained when studying t-RNA of the rat liver in the experiments with methionine. It is possible to suppose that tyrosine, methionine, leucine and glycine t-RNA and, probably, other, during the fasting of animals, are available in the liver in a changed conformation form, to which a low biological activity is peculiar.

//

REEL/FRA
19790832

sch 2

USSR

UDC 533.6.01.35--3:541.124

SEMENIKHINA, O. N. and SHKADOVA, V. P.

"Three-Dimensional Flow Past a Blunt Body by a Reacting Mixture of Gases"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 2, 1973, pp 99-103

Abstract: Detailed results of a numerical solution of the problem of three-dimensional nonequilibrium flow past a segmented blunt body by a reacting mixture of gases are presented for angles of attack ranging from 0 to 25°. Consideration is given to the flow of a nonequilibrium gas past a body of revolution in the subsonic and transonic region. The three-dimensional nature of the flow is determined by the presence of an angle of attack between the direction of the stream velocity V_∞ and the axis of the body, the flow possessing a plane of symmetry. 5 figures. 6 references.

1/1

USSR

UDC 669.71.053.4.094

AKSEL'RUD, G. A., ABRAMOV, V. YA., REYFMAN, E. D., SEMENISHIN, YE. M., GUMNITS-KAYA, N. A.

"Extraction of Sodium Aluminate in Capillary Models"

Tr. Vses. n.-i. i provektn. in-ta alyumin., magn. i elektrodn. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute
of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 85-90 (from
RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G142)

Translation: Results are presented from a study of the process of extracting sodium aluminate by solutions of various concentration at temperatures of 60, 75, and 95°. The values of the diffusion coefficient of sodium aluminate are calculated on the basis of processing the experimental data. An explanation is presented for the nature of variation of the magnitudes of the diffusion coefficients based on the $\text{Na}_2\text{O}-\text{Al}_2\text{O}_3-\text{H}_2\text{O}$ system. There are 3 illustrations and 1 table.

1/1

USSR

UDC 669.71.053.4.094

AKSEL'RUD, G. A., ABRAMOV, V. YA., SEMENISHIN, YE. M., REYFMAN, E. D., SADOVOY, G. T.

"Kinetics of Extraction of Alkali from Sodium Ferrite"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute
of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 82-84 (from
RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G143)

Translation: A study was made of the kinetics of extracting Na_2O under various temperature conditions during decomposition of sodium ferrite by water as applied to leaching bauxite cakes. The limiting stage of the given process is established, and values of the diffusion coefficients are determined. There is 1 table.

1/1

- 87 -

USSR

UDC 669.71.053.4.094

AKSEL'RUD, G. A., ABRAMOV, V. YA., REYFMAN, E. D., SEMENISHIN, YE. M.,
DUDKO, T. A.

"Mathematical Model of the Diffusion Counter Flow Process of Leaching Alumina-Containing Cakes"

Tr. Vses. n.-i. i proyekt. in-ta alyumin., magn. i elektrod. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute
of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 96-102 (from
RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G137)

Translation: A mathematical model of the diffusion counter-flow process of leaching large-fraction cakes is proposed. A method and an example of calculating the diffusion counter-flow process of leaching bauxite cakes in a percolation unit are presented. There are 3 illustrations and 1 table.

1/1

USSR

UDC 669.71.053.4.094

AKSEL'RUD, G. A., ABRAMOV, V. YA., DUDKO, T. A., REYFMAN, E. D., SEMENISHIN,
YE. M.

"Kinetics of Leaching Bauxite Cakes"

Tr. Vses. n.-i. i. proekt. in-ta alumin., magn. i. elektrod. prom-sti
(Works of the All-Union Scientific Research and Planning and Design Institute
of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 91-95 (from
RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G140)

Translation: The kinetics of extracting sodium aluminate from various fractions of bauxite cakes in the 45-95° temperature range are investigated. The diffusion coefficients of sodium aluminate are determined, and their dependence on the temperature variation is found. The characteristics of the mechanism of leaching of the cakes are established. The values of the diffusion coefficient found in this study can be used when calculating counterflow processes and equipment. There are 3 illustrations and 1 table.

1/1

- 5 -

USSR

UDC 62.503.1

AUBOV, V. G., and SEMENISTYY, K. S.

"Some Design Characteristics of a Correcting Measurement Converter with Galvanic Division"

Otbor i peredach inform. Resp. mezhved sb. (Selection and Transmission of Information, Republic Interdepartmental Collection), 1972, No 33, pp 69 - 72 (from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika, No 3, Mar 73, Abstract No 3 A309 by the authors)

Translation: The effects of the inertia and pulsation of the amplifying element are considered on the basis of the characteristics of a measuring system with series correction for the inertial qualities of the thermal sensor. The design characteristics of such systems, with galvanic division of the input and output circuits, are shown. Three illustrations, five bibliographic entries.

1/1

- 2 -

USSR

UDC 621.317.346

ZUBOV, V. G., SEMENISTYY, K. S., L'vov

"A Method of Reducing Transverse Noise when Using High Speed Measuring Converters"

Kiev, *Otbor i Peredacha Informatsii*, No 27, 1971, pp 85-88

Abstract: The transverse noise level at the input of a measuring converter designed for operation under the effect of electromagnetic inductions of an industrial circuit was estimated for the case of significant distance between the sensors and the target of the measurement. A procedure is described for reducing the transverse noise which excludes the necessity for using additional inertial elements which lower the speed of the measuring converter. The proposed procedure for suppressing the transverse noise occurring in the input circuit formed by the measuring line, the sensor and the input impedance of the measuring converter is based on the idea of using a symmetric differential transformer in the input circuits of the converter with preliminary conversion of the useful signal and the noise signal.

The circuit assembled to check the procedure for reducing the transverse noise using an audio-frequency oscillator as the noise source is described, and the test results are presented.

1/1

- 19 -

USSR

UDC 621.372.541

ZUBOV, V. G., SEMENISTYY, K. S.

"Analysis of the Errors in the Conversion Characteristic of a Linear Square Pulse Demodulator"

Otbor i peredacha inform. Resp. mezhved. sb. (Information Sorting and Transmission. Republic International Collection), 1970, vyp. 24, pp 62-67 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D26)

Translation: This article contains a description of a procedure for obtaining the conversion characteristic $U = F(f)$ of a linear square pulse demodulator. An error analysis is presented for it. A smoothing RC filter is used as the demodulator. It is demonstrated that the relative error of the characteristic of the demodulator as a function of nonlinearity caused by variation of the internal resistance of the pulse source can be decreased appreciably as a result of proper selection of individual elements of the demodulator. The derived formulas permit calculation of all the elements of the demodulator beginning with the given linearity of the conversion characteristic and the level of the output voltage pulsations.

1/1

USSR

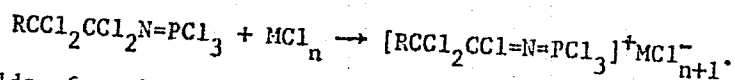
UDC 546.185

KUKHAR', V. P., SEMENIY, V. YA., KIRSANOV, A. V.

"Complexes of Trichlorophosphazopolychloroalkanes with Lewis Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol XLII (CIV), No 1, 1972, pp 98-102

Abstract: Trichlorophosphazotetrachloroalkanes react easily with Lewis acids to form crystalline salt-like complexes (I) which were isolated in the individual state:



The yields, formulas and some physical characteristics of the compounds are presented. In the infrared spectra of the (I) complexes there is an intense absorption band in the 1630-1700 cm^{-1} range belonging to the $\text{C}=\text{N}=\text{P}$ bond vibrations [Z. Arnold, Coll. Czech. Chem. Commun., No 27, 2867, 1962]. The (I) complexes are strong electrophilic agents, and they react easily with various organic compounds — hydrocarbons, aldehydes, ketones, simple and complex esters, nitriles, nitroalkanes, and so on. Structures are proposed to explain the chemical and spectral properties of these complexes.

1/1

USSR

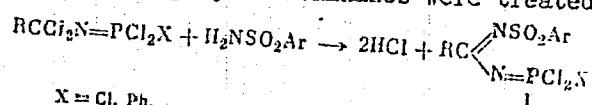
UDC 547.491+546:181

BODNARCHUK, N. D., SEMENIY, V. Ya., KUKHAR', V. P. and KIRSANOV, A. V., Institute of Organic Chemistry, Ukrainian Academy of Science SSR

"Phenyldichlorophosphazopolychloroalkanes"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 5, May 1971, pp 934-938

Abstract: Phenyldichlorophosphine was treated with aliphatic nitriles and chlorinated to saturation, to give phenyldichlorophosphazo-1,1,2,2-tetrachloroalkanes. These reactions proceed simultaneously and the products readily hydrolyze, react with amines, alcohols, and phenols. In a further reaction sequence, the phenyldichlorophosphazopolychloroalkanes were treated with arenesulfamide.



X = Cl, Ph.

This reaction proceeds slowly in the temperature range of 110-130°. The product is easily hydrolyzed, reacts with alcohols, amines and phenols to form phenyldichlorophosphazo-N-arylesulfonyliminopolychloro acyl compounds.

1/1

USSR

UDC 541.579

YEGOROV, Yu. P., KATOLICHENKO, V. I., BOROVNIKOV, Yu. Ya., FESHCHENKO, N. G.,
and SEMENIY, V. Ya., Institute of Organic Chemistry, Academy of Sciences
Ukrainian SSR, Kiev

"Dipole Moments of Phosphorus Acids Derivatives"

Kiev, Teoreticheskaya i Eksperimental'naya Khimiya, Vol 8, No 6, 1972, pp
761-769

Abstract: The dipole moments (μ) of trialkylphosphines, trialkylphosphine
oxides, and esters of phosphorus acids were measured. The electron density
and stereochemistry are examined. The precise value of μ for these mole-
cules permitted a new value for the moments of the P-X bonds ($X=C_{sp}^{2+}$,
 C_{sp}^{3+} , O^- , Alk^+ , $=O^-$, Cl^+ , F^+) to be calculated. The data are given in two
tables which show the interrelationships among the measured parameters
and the literature values.

USSR

UDC: 546.185

KUKHAR', V. P., SEMENYI, V. Ya., KIRSANOV, A. V., Institute of Organic Chemistry, Academy of Sciences of the Ukrainian SSR

"Interaction of Trichlorophosphazoperchloroethane With Amides of Carboxylic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2382-2385

Abstract: The interaction of trichlorophosphazoperchloroethane (I) with amides of carboxylic acids was studied by reacting (I) with acetamide (II). Interaction at a 1:1 molar ratio did not produce the expected N-acetyltrichlorophosphaziminotrichloroacetyl (III). Instead, the acetamide dehydrated to acetonitrile, and products of hydrolysis or acidolysis of (I) formed -- N-dichlorophosphonyliminotrichloroacetyl chloride (IV) and N-dichlorophosphonyltrichloroacetamide (V) in a ratio of approximately 2:1. When (I) interacted with acetamide in a molar ratio of 1:2, the yield of compound (V) was 75-80%, while the nitrile yield remained unchanged. Reaction in a 1:3 ratio reduces the yield of (V) somewhat (to 50-60%); however, trichloroacetamide was isolated from the final products with a yield of 10-15%. When the components were taken in 1:4 ratio the basic products of the reaction were acetonitrile and trichloro-

1/2

- 30 -

USSR

KUKHAR', V. P., et al., Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2382-2385

roacetamide. In the last two cases, the reaction was accompanied by precipitation of a resinous substance soluble in water with a strongly acid reaction, and apparently consists of a mixture of phosphoric and amidophosphoric acids. It was found that carboxylic acid amides with electron-acceptor substituents react somewhat more slowly than amides with electron-donor substituents.

USSR

UDC 678:66.018.86

SEMENKO, E. I., MYSHKOVSKIY, V. I., VOBLIKOVA, V. A., and VENDILLO, V. P.

"Study of the Gaseous Products of γ -Radiolysis of Polymers in the Presence of Small Doses of Irradiation"

Moscow, Plasticheskiye Massy, No 5, 1973, pp 30-32

Abstract: A study was made of the gaseous products formed during γ -irradiation by small (2.5 Mrads) doses of certain polymer materials used in the medical industry: high-density polyethylene, methylmethacrylatebutyl acrylate copolymer polymethylmethacrylate, polyvinyl chloride and copolymers of styrene with methylethacrylate, isoprene and divinyl.

From the experimental results presented it can be concluded that by using highly sensitive gas chromatography to analyze the products of radiolysis of certain polymer materials subjected to the effect of sterilizing doses of γ -radiation (2.5 Mrads) it is possible to establish the course of the decomposition processes with the formation of C_1 - C_5 hydrocarbons, CO, and CO_2 .

Broad utilization of ionizing radiation to sterilize medical products made of plastics requires a detailed study of the mechanism of the initial stages of the decomposition processes of polymers on irradiation of them by small doses.

1/1

"USSR"

UDC 669.295.004.2

SOLOV'YEV, Yu. V., BARKOV, L. S., SHCHETKIN, Ye. A., KORNIYENKO, L. A.,
SEMEN'KOV, A. V.

"Continuous Installation for Decontamination of Titanium-Magnesium Production
Gas Purification Waste Water"

Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod. Prom-sti [Works
of All-Union Scientific Research and Planning Institute for the Aluminum,
Magnesium and Electrode Industry], No 79, 1971, pp 95-99, (Translated from
Referativnyy Zhurnal, Metallurgiya, No 5, 1972, Abstract No 5 G269 by G.
Svodtseva).

Translation: An installation with a planned productivity of 2.5 m³/hr chlori-
nated lime milk has been constructed and tested at the Bereznikovskiy titanium-
magnesium combine. Tests were performed using the waste water from gas purifi-
cation in the electrolysis shops and acid waste waters from gas purification
from the section where carnallite is dehydrated in fluidized bed furnaces. Ex-
traction of Cl₂ from the wastes is 28%; the main losses (66%) result from the
formation of CaCl₂. The extraction of Cl₂ can be increased by increasing the
concentration of Ca(ClO)₂ and decreasing the concentration of Ca(OH)₂ and
1/2

- 47 -

USSR

UDC 669.295.004.2

SOLOV'YEV, Yu. V., BARKOV, L. S., SHCHETKIN, Ye. A., KORNIYENKO, L. A.,
SEMEN'KOV, A. V., Tr. Vses. N.-i. i Proekt. In-ta Alyumin., Magn. i Elektrod.
Prom-sti, No 79, 1971, pp 95-99.

CaCO₃ in the chlorinated lime milk. The annual economic effect of introduction
of this method of the combine was 250,000 rubles.

2/2

Organ and Tissue Transplantation

USSR

UDC 612.6-02.017.1

SEMENKOV, V. F., Smolensk Medical Institute

"Transplant Reaction to the Host and Transplantation Immunity"

Moscow, Uspekhi Sovremennoy Biologii, Vol 70, No 2, Sep/Oct 70, pp 239-254

Abstract: A review of the literature has shown that transplant reactions and transplantation immunity are not fundamentally different but are instead the same reaction of tissue incompatibility manifested under different conditions. The two are alike in that: both are accomplished by the cells of the lymph system; the reactions are immunologic in nature; both reactions are a response to the presence of foreign antigens in the recipient (transplant reaction to the host) or in the donor (transplantation immunity); the intensity of either reaction within a single species increases with an increasing degree of genetic difference between the donor and recipient; the intensity of the reaction depends on the number of mature immunocompetent cells in an inoculate (transplant reaction to the host) or in the organism of the recipient (transplantation immunity); and both reactions may occur in an acute or chronic form. The conditions under which the two reactions are manifested, the interrelationships between them, and the mechanism of development are analyzed, and the possibility of using the reactions as an experimental model for the study of autoimmune diseases is discussed.

1/1

Rare Metals

USSR

UDC 669.85/.86.051

FINOGENOV, A. D., and SEMENKOVICH, S. A.

"Ionization Potentials of Rare Earth Elements"

V sb. Khal'kogenidy (Chalcogenides--collection of works), Vyp 2, Kiev, "Naukova Dumka", 1970, pp 28-47 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G161)

Translation: A review of literature and theoretical calculations of the ionization energy of rare earth metals up to the 3-valent state for the utilization of data during thermodynamic calculations is presented. 3 ill., 5 tables, 84 bibl. entries.
A. Tseydler

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--REACTION OF TRICHLOROPHOSPHAZOPERCHLOROETHANE WITH
ARENESULFONAMIDES -U-
AUTHOR--(03)-KUKHAR, V.P., SEMENY, V.YA., PISANENKO, N.P.
COUNTRY OF INFO--USSR
SOURCE--ZH. OBSCH. KHIM. 1970, 40(3), 557-61
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--CHLOROETHANE, ORGANIC PHOSPHORUS COMPOUND, SULFONAMIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0870 STEP NO--UR/0079/70/040/003/0557/0561
CIRC ACCESSION NO--AP0124533
UNCLASSIFIED

2/2 012

CIRC ACCESSION NO--AP0124533

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. REFLUXING AN EQUIMOLAR MIXT. OF ARSO SUB3 NH SUB2 AND CCL SUB3 CCL SUB2 N:PCL SUB3 IN PHCL 8-10 HR GAVE 100PERCENT HCL AND, AFTER PROLONGED EVACUATION AT 100DEGREES, CCL SUB3 C(:NSO SUB2 AR)N:PCL SUB3 (AR SHOWN): PH, OIL, B SUB0.05 180-2DEGREES, D PRIME20 1.6292; P,CLC SUB6 H SUB4, M. 102-4DEGREES; P,BRC SUB6 H SUB4, M. 109-11DEGREES; P,MEC SUB6 H SUB4, M. 104-6DEGREES; M,O SUB2 NC SUB6 H SUB4, M. 78-80DEGREES; P,D SUB2 NC SUB6 H SUB4, M. 184-5DEGREES; 3,4,O SUB2 N(CLIC SUB6 H SUB3 M. 97-8DEGREES; 2,C SUB10 H SUB7, OIL. THE SAME WERE PREPD. FROM EQUIMOLAR MIXTS. OF PCL SUB5 AND CCL SUB3 C(:NSO SUB2 AR)NHPOCL SUB2 (I) IN REFLUXING C SUB6 H SUB6. THE PRODUCTS TREATED WITH 1 MOLE ACOH IN C SUB6 H SUB6 GAVE, AFTER 10 HR AT ROOM TEMP., I IN 46-90PERCENT YIELDS (AR GIVEN): P,MEC SUB6 H SUB4 M. 130-2DEGREES; O,CLC SUB6 H SUB4, M. 153-4DEGREES; P,CLC SUB6 H SUB4, M. 120-3DEGREES; P,BRC SUB6 H SUB4, M. 150-1DEGREES; M,O SUB2 NC SUB6 H SUB4, M. 168-70DEGREES; P,O SUB2 NC SUB6 H SUB4, M. 164-6DEGREES; 3,4,O SUB2 N(CLIC SUB6 H SUB3 M. 173-4DEGREES; 2,C SUB10 H SUB7, M. 179-80DEGREES. SIMILAR REACTION WITH H SUB2 O OF EITHER I OR THE PHOSPHAZOACYLS GAVE 80-90PERCENT CL SUB3 CCONHSO SUB2 AR (AR GIVEN): PH, M. 156-8DEGREES; P,MEC SUB6 H SUB4 M. 140-2DEGREES; P,CLC SUB6 H SUB4 M. 169-71DEGREES; P,BRC SUB6 H SUB4, (M. 163-6DEGREES); M,O SUB2 NC SUB6 H SUB4, (M. 167-80DEGREES); P,O SUB2 NC SUB6 H SUB4, (M. 210-110DEGREES); 3,4,O SUB2 N(CLIC SUB6 H SUB3 (M. 149-50DEGREES); 2,C SUB10 H SUB7 (M. 138-9DEGREES). HOT H SUB2 O GAVE ARSO SUB2 NH SUB2.

UNCLASSIFIED

Lasers / Masers

USSR

UDC: None

SEMENOV, A.

Kvantovaya Elektronika i Praktika (Quantum Electronics and its Practice), Moscow, "Znaniye," 1972, 64 pp

Abstract: A popular treatment of the principle and practice of quantum electronics and its offspring, masers and lasers, is presented in this pamphlet. It begins with a short history of this branch of electronics, starting with the practically simultaneous invention of masers by Soviet (N. G. Basov and A. M. Prokhorov) and American (C. Towns) researchers in 1954. A review is given of basic concepts of the quantum theory and atomic energy levels, and the principles of the uhf maser are discussed. Applications of the latter are given; it is noted that Soviet scientists used ruby masers, operating in the 40-cm wavelength range, for radar study of the planets in the solar system and for telephonic communication with Venus as the intermediary. Lasers of the gas, semiconductor, and liquid types are similarly discussed, and a rather extensive list of their applications presented. The pamphlet concludes with a list of books, all of them Russian, suggested for readers with an appetite for further study.

1/1

USSR

SEMENOV, A.

"Continuous-Flow Construction of an Aluminum Plant"

Na Stroykakh Rossii [Construction Projects in Russia], No 12, 1971, pp 25-27.
(Translated from Referativnyy Zhurnal Metallurgiya, No 3, 1972, Abstract No 36113 by G. Svodtseva).

Translation: The improvement of the technology of installation of equipment and technological metal structures is based on the principle of maximum enlargement of installation units. The most characteristic example is the introduction of continuous-flow industrial methods of installation of large electrolyzers.

1/1

1/1

1/2 010

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--ON THE ECONOMIC RELATIONS AND PROPORTIONS OF THE RSFSR NATIONAL
ECONOMY -U-

AUTHOR--KOLPAKOV, B., SEменов, A.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, VOPROSY EKONOMIKI, NO 1, JAN 70, PP 39-49

DATE PUBLISHED----JAN70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--ECONOMIC ANALYSIS, CYBERNETIC ECONOMIC PLANNING, PUNCHED CARD,
ECONOMIC SYSTEM, INDUSTRIAL PRODUCTION/(U)MINSK DIGITAL COMPUTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1989/1479

STEP NO--UR/9109/70/000/001/0039/0049

CIRC ACCESSION NO--AP0107911

ZZZZZZZZZZZZ

UNCLASSIFIED

2/2 010

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107911

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RSFSR CENTRAL STATISTICAL ADMINISTRATION HAS WORKED OUT AN EX POST (OTCHETNYY) INTERSECTORIAL BALANCE OF THE PRODUCTION AND DISTRIBUTION OF OUTPUT IN THE RSFSR NATIONAL ECONOMY FOR 1966. IT DISTINGUISHES 103 SECTORS OF MATERIAL PRODUCTION, INCLUDING 93 INDUSTRIAL SECTORS, TWO AGRICULTURAL SECTORS (CROP PRODUCTION AND LIVESTOCK PRODUCTION), FORESTRY, CONSTRUCTION, FREIGHT TRANSPORT AND COMMUNICATIONS, TRADE AND PUBLIC CATERING, PROCUREMENTS, MATERIAL TECHNICAL SUPPLY, AND OTHER SECTORS OF MATERIAL PRODUCTION AND SIX SECTORS OF THE NON-PRODUCTIVE SPHERE (THE HOUSING AND MUNICIPAL ECONOMY, PASSENGER TRANSPORT (AND) COMMUNICATIONS ENTERPRISES FOR THE SERVICE OF THE POPULATION, EDUCATION, PUBLIC HEALTH, CULTURE, SCIENCE AND ADMINISTRATION). PUNCHCARD EQUIPMENT AND A "MINSK-22" ELECTRONIC COMPUTER WERE USED IN DEVELOPING THE INTERSECTORIAL BALANCE. THIS ARTICLE DISCUSSES THE INTERSECTORIAL BALANCE AND WHAT IT INDICATED.

UNCLASSIFIED

USSR

UDC 535.853.4:525.7

ARSEN'YAN, T.I., PASHKOV, F.F., SEMENOV, A.A., TISHCHENKO, A.A., RIMSHIY, N.N.
[Moscow State University]

"Interferometric Investigation Of Phase Fluctuations Of Coherent Optical Radiation
In The Atmosphere"

Izv.VUZ: Radiofizika, Vol XV, No 8, Aug 1972, pp 1228-1232

Abstract: The results are presented of an investigation of the phase fluctuations of coherent optical radiation propagating in a randomly inhomogeneous troposphere. The equipment used included an interferometric system based on a Zhukov type interferometer and a special apparatus for quick-response measurement of temperature pulsations. A laser ($\lambda = 0.63$ micron) operating in a regime of axial oscillations was used as the radiation source. The radius of the beam equaled 1.2 cm. An analysis is made of averaged interference patterns as a function of the diversity base of the interfering beams. The interference patterns were obtained under various meteorological conditions which were characterized by various values of the structural constant of the refractive index. It is shown that the difference between the theoretical and experimental dependences $D_{\phi}(r)$

1/2

USSR

ARSEN'YAN, T. I., et al., Izv. VUZ: Radiofizika, Vol XV, No 8, Aug 1972,
pp 1228-1232

is determined by the turbulence intensity on the trace. A strong dependence is shown of the phase variations on the meteorological conditions along the trace, in particular on the transverse velocity and trace length. 1 fig. 2 tab. 9 ref. Received by editors, 2 Aug 1971.

2/2

- 37 -

USSR

UDC 621.315.592

OKSMAN, YA.A., SEMENOV, A.A., SMIRNOV, V.N., SMIRNOV, O.M.

"On The Multiphoton Absorption In Wide-Band Semiconductors"

Fizika i tekhnika poluprovodnikov, Vol 6, No 4, Apr 1972, pp 731-733

Abstract: Specimens of GaAs, ZnSe, and ZnS were irradiated by intense luminous fluxes in the region of transparency. For excitation, ruby and neodymium lasers were used which furnished single pulses with an energy less than one Joule and a duration of 50 and 100 nanosec, respectively. The dependence is found: 1) Of nonequilibrium absorption and the concentration of carriers (GaAs only) on the intensity of laser emission; 2) Of the photodielectric signal (nonequilibrium complex conductivity) on the intensity of laser emission; and 3) Of the photodielectric signal (effectiveness of photoresponse) in single crystal ZnS on the energy of the photons of the illuminator $\hbar\omega$ at constant intensity of the laser emission. The results provide a reason for considering that in wide-band semiconductors with a wide spectrum of impurity states which are exposed to the effect of powerful light pulses with $\hbar\omega_0 < E_g$, impurity one- and two-photon generation of carriers appears in the first place; in the latter case it evidently goes through real compound states. 3 fig. 8 ref. Received by editors, 27 Jan 1971; in final rewording, 13 July 1971.

1/1

- 188 -

USSR

UDC: 621.371.2.551.510.52

ARSEN'YAN, T. I., SEMENOV, A. A.

"Investigation of Displacement Effects in the Maxima of the Correlation Function of Fluctuations in the Amplitude of an Ultrashor-Wave Signal in the Case of Space-Time Diversity Reception"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 67-76 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A251)

Translation: This paper is devoted to an investigation of the relationship between the parameters of a signal transmitted over a tropospheric path and the parameters of turbulence of air masses. A brief survey is given of experimental and theoretical works. Experiments are described in which a radar method was used to study vertical movements in the atmosphere. The space-time correlation properties of signals were studied by using vertically spaced antennas. Four illustrations, bibliography of six titles. N. S.

1/1

-- 54 --

USSR

UDC: 621.396.2:551.510.51

SEMENOV, A. A., ARSEN'YAN, T. I.

"Relationship Between the Correlation Functions of an Ultrashort-Wave Signal and the Transmission Function of the Tropospheric Route"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 62-66 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A270)

Translation: The authors investigate the possibility of determining the statistical properties of a tropospheric communications channel by analyzing recordings of the amplitude envelope of a signal passing through the channel. It is shown how the zone of indefiniteness in the frequency band may be evaluated on the basis of analyzing the recording of field level fluctuation at the reception point. Bibliography of five titles. N. S.

1/1

.. 51 ..

USSR

UDC: 621.371.1:551.510.6

SEMENOV, A. A.

"Some Problems in Analysis of Random Fading of Ultrashort-Wave and Optical Signals in Media With Random Nonhomogeneities"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 43-61 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A242)

Translation: A survey is given of the results of theoretical and experimental studies done by various authors on the propagation of electromagnetic waves in the atmosphere as a function of pressure and the properties of the air on the transmission path. Consideration is given to the relationship between the rate of fading and the averaged drift velocity of the medium. It is shown that a radar method should be used to measure correlation dependences. The results of an investigation of the space-time correlation of fading and the effect of wind speed are discussed. Six illustrations, bibliography of thirty-four titles. N. S.

1/1

USSR

UDC: 621.385.530.145.6:623

SEME NOV, A. A., ARSEN'YAN, T. I., GAVASHVILI, G. V., GORDEYEV, A. N.

"Statistical Characteristics of Random Fading of Coherent Optical Emission During Propagation in the Troposphere"

V sb. Radiofiz. i rasprostr. elektromagnitn. voln (Radio Physics and Propagation of Electromagnetic Waves--collection of works), Moscow, 1970, pp 77-91 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D568)

Translation: A brief survey is given of important theoretical and experimental works on propagation of coherent optical emission in the troposphere. Experiments are described on measuring the statistical characteristics of coherent emission signals on an actual communications line 4.9 km long as compared with the meteorological parameters which characterize the route (temperature, humidity, wind speed). A laser with $\lambda = 6328 \text{ \AA}$ was used. The statistical characteristics were calculated on a digital computer. It is found that there are three types of fading, just as in the case of ultrashort-wave propagation (slow shallow, standard, and a slow component plus rapid fading). Time autocorrelation functions are found as well as the radii of time autocorrelation. Seven illustrations, bibliography of fourteen titles. N. S.

1/1

- 85 -

1/3 018 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--CARBOLINES. I. 1,4,DISUBSTITUTED BETA,CARBOLINES -U-
AUTHOR--KUCHKOVA, K.I., SEMONOV, A.A., TEREITYEVA, I.V. S
COUNTRY OF INFO--USSR
SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 197-201
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--OXIME, CHEMICAL SUBSTITUENT, INTRAMOLECULAR MECHANICS, NERVOUS
SYSTEM DRUG EFFECT, HETEROCYCLIC NITROGEN COMPOUND, CHEMICAL SYNTHESIS
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1987/1711 STEP NO--UR/0409/70/000/002/0197/0201
CIRC ACCESSION NO--AP0104914
UNCLASSIFIED

2/3 018

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104914

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BECKMANN REARRANGEMENT OF OXIMES (I) INTO 3,4,DIHYDROCARBOLINES (III) PROCEEDS WITH MODERATE YIELDS IS LESS THAN 50PERCENT WITH A THREEFOLD AMT. OF PCL SUB5 AT 60-100DEGREES, VIA AN ANOMALOUS CATION III, FAIRLY STABLE FOR ALIPHATIC SUBSTITUENTS R PRIME1, UNSTABLE FOR ELECTRON ACCEPTOR PHENYL SUBSTITUENTS, ESP. R PRIME3, WHEN III DOES NOT APPEAR. WITH R PRIME2 EQUALS PH, THE REARRANGEMENT INTO II SUCCEEDS IN 1:1 PHNO SUB2, DIOXANE IN POOR YIELD. I WITH ARYL R PRIME3 SUBSTITUENTS UNDERGO A BECKMANN REARRANGEMENT TO ANILIDES (IV). IN PYRIDINE UNDER ACTION OF P MEC SUB6 H SUB4 SO SUB2 CL, WITH YIELDS GREATER THAN 70PERCENT. III WERE ISOLATED EITHER AS HYDROCHLORIDES OR AS PICRATES AND WERE CATALYTICALLY DEHYDROGENATED TO CARBOLINES BY HEATING TO 140-160DEGREES IN AQ. (CH SUB2 OH) SUB2 IN THE PRESENCE OF ACTIVE PD, PREPD. FROM PDCL SUB2 AND MALEIC ANHYDRIDE. IV WERE CONVERTED TO THEIR ACIDS BY ALK. HYDROLYSIS. THUS, A MIXT. OF 5.5 G INDOLE AND 10 G BZCH:CHME WAS TREATED UNDER STIRRING AT 0DEGREES WITH 0.55 G 70PERCENT HCL SUB4 AND AFTER HOMOGENIZATION KEPT 7 HR AT ROOM TEMP. TO YIELD 56PERCENT 1,PHENYL,3,(3,INDOLYL),1,OXOBUTANE. A SOLN. OF 5.3 OF THE OXIME OF 4,PHENYL,4,(3,INDOLYL),2,OXOBUTANE IN 53 ML DIOXANE WAS RAPIDLY STIRRED INTO 11.75 G PCL SUB5 IN 53 ML PHNO SUB2 AT 50DEGREES (TEMP. ROSE TO 70DEGREES). TREATMENT WITH CHL IN ET SUB2 O YIELDED 1.15 G 1,METHYL,4,PHENYL,3,4,DIHYDRO,BETA,CARBOLINE. THIS COMPD. WAS ADDED TO A SOLN. OF 1.96 G PDCL SUB2 TIMES 2H SUB2 O AND 4.5 G MALEIC ANHYDRIDE IN 80 ML (CH SUB2 OH) SUB2 AND WARMED 3 HR UNDER STIRRING IN N AT 160DEGREES YIELDING 13PERCENT 1,METHYL,4,PHENYL,BETA,CARBOLINE.

UNCLASSIFIED

3/3 018

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104914

ABSTRACT/EXTRACT--INTO A SOLN. OF 0.275 G OF THE OXIME OF

1,3-DIPHENYL,3,(3,INDOLYL),1,OXOPROPANE IN 2.75 ML DRY PYRIDINE COOLED BY ICE, WAS STIRRED 0.185 G P MEC SUB6 H SUB4 SO SUB2 CL AND KEPT 6 HR

AT 20DEGREES GIVING 75PERCENT ANILIDE OF

3,PHENYL,3,(3,INDOLYL),PROPIONIC ACID. THIS WAS HEATED WITH KOH IN (CH SUB2 OH) SUB2 1 HR AT 190DEGREES TO YIELD 86PERCENT FREE ACID. THE

FOLLOWING ARE REPORTED (R PRIME1, R PRIME2, R PRIME3, M.P. II (SALT),

M.P. CARBOLINE, AND M.P. CARBOLINE HCL SALT GIVEN): PR, H, ME,

203-4DEGREES (HCL), 197.5-8.5DEGREES, 223-4DEGREES (ETOH); ISO-RU, H,

ME, 178-9DEGREES (HCL), 198-200DEGREES, 235-6DEGREES (ISO-PROH); ME, ME,

ME, 217-19DEGREES (HCL) (247DEGREES (PICRATE)), MINUS, MINUS: H, H, ME,

236DEGREES (PICRATE), MINUS, MINUS: PH, H, ME, MINUS, 226DEGREES,

271-3DEGREES (ISO-PROH). THE BETA CARBOLINES SUPPRESS THE CENTRAL

NERVOUS SYSTEM.

UNCLASSIFIED

SEME NOV

Fomchenkov, V. M., Shadrinov, O. A.	Application of the TMS-19 Piezoceramic for Ultrasonic Scanning of a Laser Beam	402
Vannetian, R. A., Labedeva, L. N., Samykin, N. I.	Rotation of the Lobe of the Reflection Pattern of Coherent Light on Rotation of the Reflecting Surfaces	408
Aizen'yan, I. I.	Study of the Statistical Properties of Varia- tions of the Laser Field Intensity on Propagation on a Ground Route	412
Arzen'yan, T. I., Semenov, A. A.	Analysis of Random Variations of the Laser Field Intensity in the High-Frequency Part of the Spectrum During Propagation in the Troposphere	420
Gusev, V. G., Yorobeychikov	Study of the Passage of Phase Modulated and Amplitude Modulated Optical Band Signals Through the Atmosphere	425
Milyutin, Ya. P., Lobkova, L. N., Lil'vinova, T. P., Chistyakov, A. B.	Experimental Study of Laser Beam Propagation in the Atmosphere	429
Lobkova, L. H.	Power Fluctuations of Laser Radiation Caused by a Turbulent Atmosphere	435
Vlasov, G. I., Levin, I. H.	Laser Beam Videoinformation Transmission Range in an Aqueous Medium	443
Gulin, V. N., Kabanov, M. V.	Spatial and Time Characteristics of Atmospheric Noise in the Visible Range of the Spectrum ...	447
Vaynsel, V. I., Klimashevich, S. S.	Holographic Recording Through Random Media ...	453
Gonkevich, B. V., S. Iyakov, Ye. I., Ostrov, Yu. H.	Frequency Stabilization of Laser Radiation by the Active Method with the Application of an Auxiliary Heterodyne	460
Yegorov, Yu. P., Petrov, A. S.	Experimental Measurement of the Natural Radia- tion Line Width of a Gas Laser with Coupled Types of Oscillations	464
Sagatov, L. A., Nazarov, A. U.	Correlation Analysis of the Coherence of Laser Emission	471
Sagatov, E. A., Nazarov, A. U.	Laser Noise During Operation of an Optical Quantum Amplifier	478

USSR

UDC 681.121:62-525

ARKHIPENKO, A. P., and SEMENOV, A. I.

"Dep.* Flow Sensor for Measuring Averaged Air Consumption of Pneumatic Machines of Punching Action"

In-t Gorn. Dela Sib. Otd. AN SSSR [Mining Institute of the Siberian Branch of the Academy of Sciences USSR], Novosibirsk, 1972. Eight pp, illustr., nine biblio. refs. (Manuscript on deposit from Jul 11, 1972, at the All-Union Institute of Scientific and Technical Information, No 4572-720) (From Referativnyy Zhurnal, No 10, Oct 72. 32. Metrologiya i Izmeritel'naya Tekhnika. Single Issue. Abstract No 10.32.758)

Translation: A method is reported for measuring with the help of a flow sensor pulsating with a frequency up to 40 Hz air flows in pipelines, 50-100 mm in diam. in the range from zero to 30-60 nm³/min. The construction of the sensor and the sensometric measuring schema are presented. Four illustr., nine biblio. refs.

*DEP - manuscript of completed scientific works on natural and technical sciences carried out in institutions of the Academy of Sciences USSR and the Academy of Sciences of Allied Republics, the manuscript taken for deposit in the All-Union Institute of Scientific and Technical Information, where copies of the manuscript or of its parts can be ordered.

1/1

- 183 -

USSR

UDC [537.226+537.311.33]:[537+535]

GOLOVKO, V. G., and SEMENOV, A. I.

"Thermoelectromotive Force of p-Type Silicon Under Uniaxial Compression"
Elektron. tekhnika. Nauch.-tekh. sb. Upr. kachestvom i standartiz. (Electronic Engineering. Collection of Scientific and Technical Works on Quality Control and Standardization), 1971, vyp. 4(10), pp 37-40 (from RZh-Fizika, No 1, Jan '72, Abstract No 1YE1465 by authors)

Translation: The authors consider the tensothermoelectromotive force of p-Si alloyed with B in a concentration of 10^{18} cm^{-3} under uniaxial compressive strain in the [111] direction. A measurement method is employed which eliminates the effect of variation in thermal resistances at the ends of a specimen under compression. Results are compared with theoretical tensothermoelectromotive force values obtained on the basis of the theory of PIIUS and BIR.

1/1

USSR

UDC 51:155.001.57:681.3.06

DADAMYAN, G. G., DOMNIN, B. A., SEMENOV, A. I., TUPISYN, V. G.

"Some Approaches to Formalization of Decision Making Processes in Organizational Structures"

Modelir. Sots. Protsessov [Modeling of Social Processes -- Collection of Works], Moscow, Nauka Press, 1970, pp 119-138 (Translated from Referativnyy Zhurnal Kibernetika, No 3, 1971, Abstract No 3 V569 by M. Chelyshev).

Translation: The problem of decision making in organizations of various degrees of complexity is studied. Any organization consists of a system with definite, regular structural relationships between hierarchical levels of the administration and functional links of the organization. The concept of the expert as a person or group of persons responsible for decision making at a certain level of the hierarchy in the organization is introduced. Given the levels of the hierarchy of the organization at which decisions are made and the number of alternatives presented to the expert at each level, it becomes possible in principle to construct decision networks modeling the process of decision making in the organization. The purpose of the decision networks is to reflect the entire set of decisions or all possible flows of decisions leading to an unambiguous answer to the question included in a problem. As the process of decision making;

1/2

- 33 -

USSR

UDC 51:155.001.57:681.3.06

DADAMYAN, G. G., DOMNIN, B. A., SEMENOV, A. I., TUPISYN, V. G., Modelir. Sots. Protsessov, Moscow, Nauka Press, 1970, pp 119-138.

is formalized, it is assumed that the selection of alternatives by an expert is determined by the preceding trajectory of a document and the induced hypothesis concerning the further path of documents in the organization. The structure of a graph illustrating the decision network is analyzed. The graph of the decision network is characterized by the following conditions: 1) each point connects to at least two lines (except for the root); 2) the "tree" should have no closed loops. This method of modeling of decision making processes is understandable and convenient. It must be noted that the use of decision networks produces only an indirect economic effect, in that it may lead to efficient arrangement and control of the organization being studied.

2/2

USSR

SEMENOV, A. I., Editorial Board of the Journal Radiobiologiya (Radiobiology)
of the Academy of Sciences USSR

"Kinetics of Curium-244 Metabolism"

Kinetika obmena kyuriya-244 (cf. English above), Moscow, 1970, 8 pp, bibliography with one title (No 2286-70 Dep) (from RZh-Biologicheskaya Khimiya, No 8, 25 Apr 71, Abstract No 8F1309 Dep by authors)

Translation: After Cm-244 is injected intravenously in rats it quickly leaves the blood stream and is retained to a greater extent in the liver and skeleton (during the period of maximum content the values of radioactivity in these organs are 51.3 and 22.3% respectively; in the kidneys this value equals 2.03%). Elimination of Cm-244 from the liver is described by two exponents. There is practically no elimination of Cm-244 from the bone tissue. Elimination from the organism takes place through the gastrointestinal tract. The resorption rate in case of peroral administration is $\sim 0.05\%$.

1/1

- 73 -

USSR

UDC: 621.319.4

GEDZYUN, V. A., SEMENOV, A. I.

"A Study of the Relationship Between the Voltage at the Start of Partial Discharges in the Dielectric and Dielectric Losses in High-Voltage Ceramic Capacitors"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 4(21), pp 11-18 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V320)

Translation: It is shown that there is a relationship between the voltage at the beginning of partial discharges and energy losses in the dielectric of high-voltage ceramic capacitors measured on low voltages. It is shown how the voltage at the beginning of partial discharges affects the temperature of the dielectric in the capacitor during operation in the high-frequency mode. Resumé.

1/1

USSR

UDC: 621.319.4

GEDZYUN, V. A., SEMENOV, A. I.

"Future Possibilities of Nondestructive Methods of Checking the Working Capacity of High-Voltage Ceramic Capacitors"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Components), 1970, vyp. 4(21), pp 19-26 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V321)

Translation: It is shown that it is possible in principle to predict the working capacity of high-voltage ceramic capacitors. Two methods are proposed for nondestructive quantitative inspection. Resumé.

1/1

USSR

UDC 615.849.19.099

SEMENOV, A. I., and SYNGAYEVSKAYA, V. A., Military-Medical Academy imeni S. M. Kirov, Leningrad

"Some General Changes in the Body Caused by Laser Radiation"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 3, 1970, pp 9-12

Abstract: Soon after construction of the first lasers, reports appeared indicating adverse effects on eyes, including blindness. Later animal experiments showed that exposure of eyes to laser radiation also causes many general changes in the body, especially in the cardiovascular system, but also in the central nervous system, endocrine organs, etc. Examination of people working with lasers showed similar trends in human subjects. It was shown experimentally that the adverse effect of laser radiation may be minimized by good hygienic conditions and proper illumination of the work area.

1/1

1/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--SOME GENERAL CHANGES CAUSED BY THE OPTIC QUANTUM GENERATORS'
RADIATION -U-
AUTHOR-(02)-SEMENOV, A.I., SYNGAYEVSKAYA, V.A. S
COUNTRY OF INFO--USSR
SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1970, NR 3, PP
9-12
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LASER RADIATION BIOLOGIC EFFECT, EYE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1982/1545

STEP NO--UR/0391/70/000/003/0009/0012

CIRC ACCESSION NO--AP0052749

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--18SEP70

2/2 028

CIRC ACCESSION NO--AP0052749
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. REPORTS OF AN ADVERSE EFFECT PRODUCED ON THE ORGAN OF VISION BY OGG (LAZERS) APPEARED ALREADY IN THE FIRST YEARS AFTER THEIR CONSTRUCTION. IRRADIATION OF THE EYES WITH LAZER'S RAYS WAS NOTED APT TO RESULT IN VERY SERIOUS DISTURBANCES OF THE VISUAL FUNCTION, UP TO AND INCLUDING BLINDNESS. THIS IS THE CIRCUMSTANCE THAT HAS BASICALLY PRE DETERMINED THE ORIENTATION OF FURTHER INVESTIGATIONS IN THIS FIELD. LATER ON, HOWEVER, EVIDENCE HAS BEEN GAINED DEMONSTRATING THAT IRRADIATION OF THE EYES IS NOT CONFINED TO OCULAR CHANGES ALONE, BUT CAUSES DIVERSE GENERAL ALTERATIONS IN THE ORGANISM EXPOSED TO IRRADIATION, ESPECIALLY IN ITS CARDIOVASCULAR SYSTEM. EXAMINATIONS OF PERSONS DEALING WITH LAZERS DISCLOSED ANALOGOUS CHANGES TO OCCUR IN THEM TOO. EXPERIMENTAL INVESTIGATIONS ASCERTAINED THAT THE GENERAL ADVERSE EFFECT OF LAZER'S RAYS ON THE ORGANISM CAN BE MATERIALLY REDUCED BY CREATING GOOD GENERAL HYGIENIC CONDITIONS AND, ABOVE ALL, THROUGH PROVIDING PROPER OVER ALL ILLUMINATION OF WORK PLACES AT WHICH LAZERS ARE OPERATED.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

1/2 024

TITLE--BROADBAND RADIO COMMUNICATION -U-

AUTHOR--(02)-SEMEDOV, A.A., SIKAREV, A.A.

COUNTRY OF INFO--USSR

SOURCE--SHIROKOPOLDSNAYA RADIOSYVAZ', MOSCOW, VOYENIZDAT, 1970, 277 PP
(SL:2459)

DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--BROADBAND COMMUNICATION, SIGNAL INTERFERENCE, CORRELATION
ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3006/0036

STEP NO--UR/0000/70/000/000/0001/0277

CIRC ACCESSION NO--AM0136916

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

2/2 024
CIRC ACCESSION NO--AM0133916

ABSTRACT/EXTRACT--(U) GP-0-

INTRODUCTION 9. CHAPTER I

RADIO COMMUNICATION 11. II

METHODS OF RADIO RECEPTION 41. III

SYSTEMS OF RADIO COMMUNICATION 126. IV

SYSTEMS 191. V DISCRETE ADDRESS SYSTEMS OF BROADBAND RADIO

COMMUNICATION 218. VI COMPARATIVE EVALUATION OF VARIOUS BROADBAND

SYSTEMS OF RADIO COMMUNICATION 253. CONCLUSION 272. LITERATURE

274. BROADBAND RADIO COMMUNICATION HAS VALUABLE PROPERTIES: GREAT

SECRECY AND INTERFERENCE KILLING FEATURE (IN COMPARISON WITH ORDINARY

RADIO COMMUNICATION), OPTION OF INFORMATION, ETC. THE BOOK, WRITTEN ON

OPEN DOMESTIC AND FOREIGN MATERIALS, EXAMINES BASIC PRINCIPLES OF

CONSTRUCTION AND SPECIAL FEATURES OF BROADBAND SYSTEMS OF COMMUNICATION,

PRESENTS EXAMPLES OF REALIZATION OF SUCH SYSTEMS, SHOWS PROSPECTS OF

THEIR FURTHER DEVELOPMENT AND USE IN RADIO COMMUNICATION. THE BOOK WAS

WRITTEN FOR STUDENTS OF MILITARY SCHOOLS, AUDIENCES OF MILITARY

ACADEMIES AND OFFICERS OF SIGNAL CORPS. IT MAY ALSO BE USEFUL TO A WIDE

CIRCLE OF READERS, INTERESTED IN PROBLEMS OF CONTEMPORARY COMMUNICATION

TECHNOLOGY.

UNCLASSIFIED

USSR

UDC: 621.396.2

SEMENOV, A. M., SIKAREV, A. A.

"Broad-Band Radio Communications"

Shirokopolosnaya radiosvyaz' (cf. English above), Voenizdat, 1970, 278 pp, ill.
63 k. (from RZh-Radiotekhnika, No 7, Jul 70, Abstract No 7A119 K)

Translation: Wide-band radio communications has a number of valuable characteristics: high speed and interference to resistance (as compared with conventional radio communications), the possibility of data sampling, etc. In this book, which is based on Soviet and non-Soviet materials, consideration is given to the fundamental principles of construction and the singularities of wide-band communications systems, examples of the realization of such systems are given, and the prospects for their further development and use in radio communications is demonstrated.
Resumé.

1/1

1/2 064 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EXPERIMENTAL STUDY OF THE CHARACTERISTICS OF A MACH REFLECTION IN A
SHOCK TUBE -U-
AUTHOR-(03)-SEMENOV, A.N., SYSHCHIKOVA, M.P., BEREZKINA, M.K.
COUNTRY OF INFO--USSR
SOURCE--ZHURNAL TEKHNIЧЕСКОИ ФИЗИКИ, VOL. 40, MAY 1970, P. 1033-1043
DATE PUBLISHED---MAY70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SHOCK TUBE, MACH NUMBER, SHADOWGRAPH PHOTOGRAPHY, ARGON,
NITROGEN, CARBON DIOXIDE, FREON, SHOCK WAVE REFLECTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO---FD70/605007/D09 STEP NO--UR/0057/70/040/000/1033/1043
CIRC ACCESSION NO--AP0139888
UNCLASSIFIED

2/2 064

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139888

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF SHADOW PHOTOGRAPH TO AN INVESTIGATION OF MACH REFLECTIONS IN ARGON, NITROGEN, CARBON DIOXIDE, AND FREON-12 AT MACH NUMBERS FROM 1.33 TO 6.34 IN A SHOCK TUBE.

A THEORY IS PROPOSED TO EXPLAIN THE PARADOX OF WEAK SHOCK WAVE REFLECTION. ACCORDING TO THIS THEORY, THE HUYGENS PRINCIPLE ACCOUNTS FOR THE MECHANISM OF TRANSFER OF AN ELEMENTARY SOURCE OF SOUND BY A SLIPSTREAM BEHIND AN INCIDENT SHOCK WAVE. THE SPECIFIC REFLECTION CHARACTERISTICS OF INTENSIVE SHOCK WAVES ARE LINKED TO THE DEVELOPMENT OF A HELICAL STREAM IN SECTIONS OF CONTACT DISCONTINUITIES ADJACENT TO THE SHOCK TUBE WALL.

FACILITY: AKADEMIYA NAUK SSSR, FIZIKO-TEKHNICHESKII INSTITUT, LENINGRAD, USSR.

UNCLASSIFIED

SEMENOV, A. P.

So: 5785 59214
6 June 1973

MEASUREMENTS OF MICROHARDNESS BY INDENTATION AND SCRATCHING
(Conference in Moscow)

Article by Doctor of Technical Sciences A. P. Semenov, Moscow,
Vestnik Akademi Nauk SSSR, Russian, No 41 April 1973, pp 90-92

Study of the properties of materials in microscopically small volumes, in separate structural components of complex alloys, and also in thin surface films is needed not only to expand our knowledge of materials and changes in their properties in processes of technological processing and operating service of machines and tools, but also to purposefully give them new properties. Tests of microhardness by indentation and scratching are a very promising method of investigations in that area. Apparatus and procedures for measuring microhardness began to be developed in the USSR about 35 years ago by the late M. M. Khrushchev and Ye. S. Berkovich in the Institute of Machine Studies. Testing for microhardness became very widespread in very different branches of science and technology after the high-quality instrument PMT-5 began to be produced for those purposes in the Leningrad Optical and Mechanical Union (LOMO) in 1949.

Scientific and technological conferences convened upon the initiative of the Institute of Machine Studies have also contributed to the introduction of the procedure. On 24-26 October 1972 was held, in Moscow, the fourth conference, devoted to the latest achievements in the application of the method of measuring microhardness by indentation and scratching. Its organizers were the Institute of Machine Studies, the Scientific Council for Strength and Plasticity and the Institute of Metallurgy named A. A. Baykov of the AS USSR. Participating in the work of the conference were over 250 representatives of academic and branch institutes, design offices, VUZ, and industrial enterprises from 28 cities of the country. Eighty-two reports were heard, which can be grouped in three sections: physical

USSR

UDC 621.891:620.179.4:620.171.32:669.018.45

SEMEV, A. P.

Treniye i adgezionnoye vzaimodeystviye tugoplavkikh materialov pri vysokikh temperaturakh (Friction and Adhesive Interaction of Refractory Materials at High Temperatures), Moscow, "Nauka" Press, 1972, 160 p., illustrations, graphs, tables, bibliographic reference, 1600 copies printed.

Translation of Annotation: The monograph deals with methods and results of studies on the function and adhesive interaction of combinations of both similar and dissimilar refractory materials of various types (metals, carbides, borides, hard alloys, and oxides) at high temperatures (up to 2000°C in vacuum and gaseous media (argon, helium, nitrogen). Approximate regularities for selecting materials to fit couplings for service under friction at high temperature are formulated. The publication is intended for a wide circle of researchers and scientists doing practical work in metallurgy, designers, machine builders, and technologists engaged in studies, planning, design, manufacture, and treatment of various parts from refractory materials.

Translation of Table of Contents:

Introduction

Ch. I. Review of Papers Dealing With Studies of Friction and
Adhesive Interaction at High Temperatures

5

1/4

7